



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,587	09/23/2003	David M. Hoffman	134184CT	2434

26946 7590 08/22/2005

JOSEPH S. HEINO, ESQ.
111 E. KILBOURN AVENUE
SUITE 1400
MILWAUKEE, WI 53202

EXAMINER

VU, MINDY D

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/668,587

Applicant(s)

HOFFMAN, DAVID M.

Examiner

Mindy Vu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/23/03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

This Office Action is in response to the Applicant's application filed September 23, 2003.

Drawings

Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

Numbering of elements:

"Scintillator array 66" (pg. 6 line 18) & "scintillator array 54" (pg. 6 line 20).

"Switch apparatus 74" (pg. 6 line 12) & "switch apparatus 84" (pg. 7 line 9)
& "electrical cable 74" (pg. 7 line 19).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al. (5,510,622).

With respect to Claim 1, Hu et al. discloses a detector array 16 for a CT system (for example Fig. 3A) comprising: a plurality of detector elements 18 along both an X-axis and a Z-axis; wherein the detector elements are arranged in a staggered pattern 40.

With respect to Claim 2, Hu et al. discloses wherein two neighboring detector elements in the Z-axis are coupled together (See Fig. 3, pattern 40).

With respect to Claim 3, Hu et al. discloses wherein the coupled detector elements are staggered throughout the detector module (See Fig. 3, pattern 40).

With respect to Claim 4, Hu et al. discloses wherein a first plurality of detector elements 18A are coupled together and a second plurality of detector elements 18B are coupled together and wherein the first plurality of coupled elements 18A are staggered with respect to the second plurality of coupled elements 18B and the rest of the detector array follows a similar pattern (Col. 3 lines 23-34).

Claims 5-14 and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman (US 2002/0085108).

With respect to Claim 5, Hoffman discloses a method for sampling for use with a CT system (Abstract) comprising: providing a plurality of detector elements 20 in a detector array 18 (Paragraph 0016); connecting an FET array to the detector elements electronically (Paragraph 0023), determining the number of slices required and the thickness of each slice (Paragraph 0025), and providing a staggered detector element array (Paragraph 0028).

With respect to Claim 6, Hoffman further discloses the step of electronically coupling together two neighboring detector elements in the Z-axis (Abstract).

With respect to Claim 7, Hoffman discloses the step of staggering the coupled elements through the detector module (Paragraphs 0019 & 0028).

With respect to Claim 8, Hoffman discloses the step of: providing a first plurality of detector elements that are coupled together; providing a second plurality of detector elements that are coupled together; staggering the first plurality of coupled elements with respect to the second plurality of coupled elements; coupling the remaining detector elements in the module in a similar pattern (Paragraphs 0028 & 0032).

With respect to Claim 9, Hoffman discloses a detector module 50 for use in a computed tomography machine, said detector module apparatus comprising: a plurality of detector elements 20; a switching array 60 electrically connected to the detector elements; a decoder 62 electronically connected to the switching array; said decoder

Art Unit: 2878

coupling detector elements together to form a staggered array of detector elements (Paragraphs 0019 & 0028).

With respect to Claim 10, Hoffman discloses wherein the switching array comprises a plurality of field effect transistors, wherein each field effect transistor has an input, an output, and a control line (Paragraph 0021).

With respect to Claim 11, Hoffman discloses the decoder controls the switching array to combine outputs of the detector elements (Paragraph 0024).

With respect to Claim 12, Hoffman discloses wherein two neighboring detector elements in the Z-axis are coupled together (Paragraph 0031).

With respect to Claim 13, Hoffman discloses wherein the coupled detector elements are staggered through the detector module (Paragraph 0028).

With respect to Claim 14, Hoffman discloses wherein a first plurality of detector elements are coupled together and a second plurality of detector elements are coupled together and wherein the first plurality of coupled elements are staggered with respect to the second plurality of coupled elements and the rest of the detector array follows a similar pattern (Paragraphs 0028 & 0032).

With respect to Claim 21, Hoffman discloses a method for summing outputs from a diode array in a multislice photodetector (Paragraph 0031), having an array of scintillators optically coupled to an array of diodes (Paragraph 0019), said method comprising summing a number of selectively connected cells in the Z-direction (Fig. 5).

With respect to Claim 22, Hoffman discloses wherein two cells are coupled together in the Z-direction. See Fig. 5.

With respect to Claim 23, Hoffman discloses wherein the coupled elements are staggered in the X-direction (Paragraph 0028).

With respect to Claim 24, Hoffman discloses wherein a first pair of detector elements are coupled together and a second pair of detector elements are coupled together and wherein the first pair of coupled elements are staggered with respect to the second pair of coupled elements and the rest of the detector array follows a similar pattern (Paragraph 0028).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman (US 2002/0085108) in view of Mattson et al. (6,426,991).

With respect to Claims 15 and 16, Hoffman discloses the detector module for a CT system comprising: a scintillator array; a photodiode array optically coupled to said scintillator array; a switching array electrically connected to the photodiode array; a

Art Unit: 2878

decoder electronically connected to the switch array, said decoder being configured to control operation of said switch apparatus to combine data signals in accordance to select a staggered pattern of data transmitted during detection of the data from the detector module (See Paragraphs 0020, 0021, & 0024). Hoffman lacks to disclose a collimator array. Mattson et al. discloses a collimator for a CT system (Col. 7 lines 28-31). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a collimator array in a CT system for collimating x-ray beams and removing scatter x-rays received at the detector.

With respect to Claim 17, Hoffman discloses wherein the switching array comprises a plurality of field effect transistors, wherein each field effect transistor has an input, an output, and a control line (Paragraph 0021).

With respect to Claim 18, Hoffman discloses wherein two neighboring detector elements in the Z-axis are coupled together (Paragraph 0031).

With respect to Claim 19, Hoffman discloses wherein the coupled detector elements are staggered through the detector module (Paragraph 0028).

With respect to Claim 20, Hoffman discloses wherein a first pair of detector elements are coupled together and a second pair of detector elements are coupled together and wherein the first pair of coupled elements are staggered with respect to the second pair of coupled elements and the rest of the detector array follows a similar pattern (Paragraph 0028).

Art Unit: 2878


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mindy Vu whose telephone number is 571-272-8539. The examiner can normally be reached on M-F 9am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mv


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800